The functions of microRNAs in pluripotency and reprogramming.

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Public Summary:
In the human genome, there are about 1000 tiny nucleotide sequences, called microRNAs, that regulate the activity of protein-coding genes. Each microRNA has specific mRNA targets, which it binds to and disables, decreasing the amount of protein that is made from that mRNA template. A unique set of microRNAs is produced in human pluripotent stem cells and plays a critical role in the cells' remarkable abilities to self-renew and differentiate into a wide variety of cell types. In this article, we extensively review the published work on the roles that microRNAs may play in reprogramming cells to iPSCs. The review forms the backdrop for our research on the roles of microRNAs in pluripotent stem cells.

Scientific Abstract: